

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	request.clm. and service.clm. and user.clm. and "user space".clm. and kernel.clm. and memory.clm. and security.clm. and authenticat\$3.clm. and computer.clm. and method.clm. and transsmi\$4.clm.	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:09
L2	1	request.clm. and service.clm. and user.clm. and "user space".clm. and kernel.clm. and memory.clm. and security.clm. and authenticat\$3.clm. and computer.clm. and method.clm. and transmit\$4.clm.	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:09
L3	1	request.clm. and service.clm. and user.clm. and "user space".clm. and kernel.clm. and memory.clm. and security.clm. and authenticat\$3.clm. and computer.clm. and method.clm. and transmit\$4.clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:09
L4	128	request and service and user and "user space" and kernel and memory and security and authenticat\$3 and computer and method and transmit\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:15
L5	128	request and service and user and "user space" and kernel and memory and security and authenticat\$3 and computer and method and transmit\$4	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:10
L6	82	726/23	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:10
L7	7282	726/4 or 713/164 or 713/167 or 726/23 or 713/200	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:11
L8	20	7 and 5	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:11
L9	14	"abrams".inv. and roger	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:12
L10	6	9 and kenneth	US-PGPUB; USPAT	OR	OFF	2006/10/13 12:12

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L11	1019408	380/200 or 399/366 or 455/26.1 or 700/225 or 705/18 or "700" or "225" or 711/164 or 713/187 or "714" "768" or 726/21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:17
L12	3473	380/200 or 399/366 or 455/26.1 or 700/225 or 705/18 or 700/225 or 711/164 or 713/187 or 714/768 or 726/21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:18
L13	9995	12 or 7 or 6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:18
L14	23	13 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/13 12:18

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Relevance scale ☐ ☐ ☐**1** Cryptography as an operating system service: A case study

Angelos D. Keromytis, Jason L. Wright, Theo De Raadt, Matthew Burnside

February 2006 **ACM Transactions on Computer Systems (TOCS)**, Volume 24 Issue 1**Publisher:** ACM Press

Full text available: pdf(669.12 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Cryptographic transformations are a fundamental building block in many security applications and protocols. To improve performance, several vendors market hardware accelerator cards. However, until now no operating system provided a mechanism that allowed both uniform and efficient use of this new type of resource. We present the OpenBSD Cryptographic Framework (OCF), a service virtualization layer implemented inside the operating system kernel, that provides uniform access to accelerator functio ...

Keywords: Encryption, authentication, cryptographic protocols, digital signatures, hash functions

2 System support for pervasive applications

Robert Grimm, Janet Davis, Eric Lemar, Adam Macbeth, Steven Swanson, Thomas Anderson, Brian Bershad, Gaetano Borriello, Steven Gribble, David Wetherall

November 2004 **ACM Transactions on Computer Systems (TOCS)**, Volume 22 Issue 4**Publisher:** ACM Press

Full text available: pdf(1.82 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Pervasive computing provides an attractive vision for the future of computing. Computational power will be available everywhere. Mobile and stationary devices will dynamically connect and coordinate to seamlessly help people in accomplishing their tasks. For this vision to become a reality, developers must build applications that constantly adapt to a highly dynamic computing environment. To make the developers' task feasible, we present a system architecture for pervasive computing, called & ...


Keywords: Asynchronous events, checkpointing, discovery, logic/operation pattern, migration, one.world, pervasive computing, structured I/O, tuples, ubiquitous computing

3 Evaluating the performance of user-space and kernel-space web servers

Amol Shukla, Lily Li, Anand Subramanian, Paul A. S. Ward, Tim Brecht

October 2004 **Proceedings of the 2004 conference of the Centre for Advanced Studies on Collaborative research**

Publisher: IBM Press

Full text available:  [pdf\(91.70 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

There has been much debate over the past few years about the practice of moving traditional user-space applications, such as web servers, into the kernel for better performance. Recently, the user-space userver web server has shown promising performance for delivering static content. In this paper we first describe how we augmented the userver to enable it to serve dynamic content. We then evaluate the performance of the userver and the kernel-space TUX web server, using the SPECweb99 workloa ...

4 Process migration



Dejan S. Milojičić, Fred Douglass, Yves Paindaveine, Richard Wheeler, Songnian Zhou
September 2000 **ACM Computing Surveys (CSUR)**, Volume 32 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.24 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Process migration is the act of transferring a process between two machines. It enables dynamic load distribution, fault resilience, eased system administration, and data access locality. Despite these goals and ongoing research efforts, migration has not achieved widespread use. With the increasing deployment of distributed systems in general, and distributed operating systems in particular, process migration is again receiving more attention in both research and product development. As hi ...

Keywords: distributed operating systems, distributed systems, load distribution, process migration

5 Efficient user-space protocol implementations with QoS guarantees using real-time upcalls

R. Gopalakrishnan, Gurudatta M. Parulkar

August 1998 **IEEE/ACM Transactions on Networking (TON)**, Volume 6 Issue 4

Publisher: IEEE Press

Full text available:  [pdf\(205.42 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: multimedia communication, networks, operating system kernels, processor scheduling, protocols, real-time systems, transport protocols

6 The KaffeOS Java runtime system



Godmar Back, Wilson C. Hsieh

July 2005 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 27 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(704.30 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Single-language runtime systems, in the form of Java virtual machines, are widely deployed platforms for executing untrusted mobile code. These runtimes provide some of the features that operating systems provide: interapplication memory protection and basic system services. They do not, however, provide the ability to isolate applications from each other. Neither do they provide the ability to limit the resource consumption of applications. Consequently, the performance of current systems degra ...

Keywords: Robustness, garbage collection, isolation, language runtimes, resource management, termination, virtual machines

7 UFO: a personal global file system based on user-level extensions to the operating system

 Albert D. Alexandrov, Maximilian Ibel, Klaus E. Schauser, Chris J. Scheiman
August 1998 **ACM Transactions on Computer Systems (TOCS)**, Volume 16 Issue 3

Publisher: ACM Press

Full text available:  pdf(251.25 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In this article we show how to extend a wide range of functionality of standard operation systems completely at the user level. Our approach works by intercepting selected system calls at the user level, using tracing facilities such as the /proc file system provided by many Unix operating systems. The behavior of some intercepted system calls is then modified to implement new functionality. This approach does not require any relinking or recompilation of existing applications. In fact, the ...

Keywords: file caching, global name space, proc file system, user-level operating system extensions

8 Protecting applications with transient authentication

 Mark D. Corner, Brian D. Noble
May 2003 **Proceedings of the 1st international conference on Mobile systems, applications and services MobiSys '03**

Publisher: ACM Press

Full text available:  pdf(294.40 KB)

Additional Information: [full citation](#), [abstract](#), [references](#)

How does a machine know who is using it? Current systems authenticate their users infrequently, and assume the user's identity does not change. Such *persistent authentication* is inappropriate for mobile and ubiquitous systems, where associations between people and devices are fluid and unpredictable. We solve this problem with *Transient Authentication*, in which a small hardware token continuously authenticates the user's presence over a short-range, wireless link. We present the fo ...

9 Stateful distributed interposition

 John Reumann, Kang G. Shin
February 2004 **ACM Transactions on Computer Systems (TOCS)**, Volume 22 Issue 1

Publisher: ACM Press

Full text available:  pdf(833.84 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Interposition-based system enhancements for multitiered servers are difficult to build because important system context is typically lost at application and machine boundaries. For example, resource quotas and user identities do not propagate easily between cooperating services that execute on different hosts or that communicate with each other via intermediary services. Application-transparent system enhancement is difficult to achieve when such context information is obscured by complex service ...

Keywords: Distributed computing, component services, distributed context, multitiered services, operating systems, server consolidation

10 Migrating sockets—end system support for networking with quality of service guarantees

David K. Y. Yau, Simon S. Lam
December 1998 **IEEE/ACM Transactions on Networking (TON)**, Volume 6 Issue 6

Publisher: IEEE Press

Full text available:  pdf(369.10 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: CPU scheduling, bandwidth scheduling, packet demultiplexing, quality of service guarantees, user level protocol

11 Separating access control policy, enforcement, and functionality in extensible systems



Robert Grimm, Brian N. Bershad

February 2001 **ACM Transactions on Computer Systems (TOCS)**, Volume 19 Issue 1

Publisher: ACM Press

Full text available: [pdf\(164.03 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Extensible systems, such as Java or the SPIN extensible operating system, allow for units of code, or extensions, to be added to a running system in almost arbitrary fashion. Extensions closely interact through low-latency but type-safe interfaces to form a tightly integrated system. As extensions can come from arbitrary sources, not all of whom can be trusted to conform to an organization's security policy, such structuring raises the question of how security constraints are enforced in an ...

Keywords: Java, SPIN, access check, auditing, extensible systems, policy-neutral enforcement, protection domain, protection domain transfer, security policy

12 Distributed operating systems



Andrew S. Tanenbaum, Robbert Van Renesse

December 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 4

Publisher: ACM Press

Full text available: [pdf\(5.49 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Distributed operating systems have many aspects in common with centralized ones, but they also differ in certain ways. This paper is intended as an introduction to distributed operating systems, and especially to current university research about them. After a discussion of what constitutes a distributed operating system and how it is distinguished from a computer network, various key design issues are discussed. Then several examples of current research projects are examined in some detail ...

13 Puzzles and users: New client puzzle outsourcing techniques for DoS resistance



Brent Waters, Ari Juels, J. Alex Halderman, Edward W. Felten

October 2004 **Proceedings of the 11th ACM conference on Computer and communications security**

Publisher: ACM Press

Full text available: [pdf\(382.11 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We explore new techniques for the use of cryptographic puzzles as a countermeasure to Denial-of-Service (DoS) attacks. We propose simple new techniques that permit the out-sourcing of puzzles; their distribution via a robust external service that we call a bastion. Many servers can rely on puzzles distributed by a single bastion. We show how a bastion, somewhat surprisingly, need not know which servers rely on its services. Indeed, in one of our constructions, a bastion may consist merely of ...

Keywords: DoS, client puzzles, denial-of-service

14 On incremental file system development

Erez Zadok, Rakesh Iyer, Nikolai Joukov, Gopalan Sivathanu, Charles P. Wright

 May 2006 **ACM Transactions on Storage (TOS)**, Volume 2 Issue 2

Publisher: ACM Press

Full text available:  pdf(260.40 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Developing file systems from scratch is difficult and error prone. Using layered, or stackable, file systems is a powerful technique to incrementally extend the functionality of existing file systems on commodity OSes at runtime. In this article, we analyze the evolution of layering from historical models to what is found in four different present day commodity OSes: Solaris, FreeBSD, Linux, and Microsoft Windows. We classify layered file systems into five types based on their functionality and ...

Keywords: I/O manager, IRP, Layered file systems, VFS, extensibility, stackable file systems, vnode

15 Labels and event processes in the asbestos operating system

 Petros Efstathopoulos, Maxwell Krohn, Steve VanDeBogart, Cliff Frey, David Ziegler, Eddie Kohler, David Mazières, Frans Kaashoek, Robert Morris

October 2005 **ACM SIGOPS Operating Systems Review , Proceedings of the twentieth ACM symposium on Operating systems principles SOSP '05**, Volume 39 Issue 5


Publisher: ACM Press

Full text available:  pdf(258.58 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Asbestos, a new prototype operating system, provides novel labeling and isolation mechanisms that help contain the effects of exploitable software flaws. Applications can express a wide range of policies with Asbestos's kernel-enforced label mechanism, including controls on inter-process communication and system-wide information flow. A new event process abstraction provides lightweight, isolated contexts within a single process, allowing the same process to act on behalf of multiple users while ...

Keywords: event processes, information flow, labels, mandatory access control, secure web servers

16 Experiences with the Amoeba distributed operating system

 Andrew S. Tanenbaum, Robbert van Renesse, Hans van Staveren, Gregory J. Sharp, Sape J. Mullender


December 1990 **Communications of the ACM**, Volume 33 Issue 12

Publisher: ACM Press

Full text available:  pdf(2.71 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The Amoeba project is a research effort aimed at understanding how to connect multiple computers in a seamless way [16, 17, 26, 27, 31]. The basic idea is to provide the users with the illusion of a single powerful timesharing system, when, in fact, the system is implemented on a collection of machines, potentially distributed among several countries. This research has led to the design and implementation of the Amoeba distributed operating system, which is being used as a prototype and veh ...

17 Operating systems security: Attestation-based policy enforcement for remote access

 Reiner Sailer, Trent Jaeger, Xiaolan Zhang, Leendert van Doorn

October 2004 **Proceedings of the 11th ACM conference on Computer and communications security**

Publisher: ACM Press

Full text available:  pdf(261.52 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Intranet access has become an essential function for corporate users. At the same time,

corporation's security administrators have little ability to control access to corporate data once it is released to remote clients. At present, no confidentiality or integrity guarantees about the remote access clients are made, so it is possible that an attacker may have compromised a client process and is now downloading or modifying corporate data. Even though we have corporate-wide access control over ...

Keywords: remote access, security management, trusted computing

18 Experiences implementing a high performance TCP in user-space



Aled Edwards, Steve Muir

October 1995 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '95**, Volume 25 Issue 4

Publisher: ACM Press

Full text available: pdf(1.14 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The advantages of user-space protocols are well-known, but implementations often exhibit poor performance. This paper describes a user-space TCP implementation that outperforms a 'normal' kernel TCP and that achieves 80% of the performance of a 'single-copy' TCP. Throughput of 160 Mbit/s has been measured. We describe some of the techniques we used and some of the problems we encountered.

19 Termination in language-based systems



Algis Rudys, Dan S. Wallach

May 2002 **ACM Transactions on Information and System Security (TISSEC)**, Volume 5 Issue 2

Publisher: ACM Press

Full text available: pdf(355.43 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Language run-time systems are increasingly being embedded in systems to support run-time extensibility via mobile code. Such systems raise a number of concerns when the code running in such systems is potentially buggy or untrusted. Although sophisticated access controls have been designed for mobile code and are shipping as part of commercial systems such as Java, there is no support for terminating mobile code short of terminating the entire language run-time. This article presents a c ...

Keywords: Applets, Internet, Java, resource control, soft termination, termination

20 Access management for distributed systems: Peer-to-peer access control architecture using trusted computing technology



Ravi Sandhu, Xinwen Zhang

June 2005 **Proceedings of the tenth ACM symposium on Access control models and technologies**

Publisher: ACM Press

Full text available: pdf(215.48 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

It has been recognized for some time that software alone does not provide an adequate foundation for building a high-assurance trusted platform. The emergence of industry-standard trusted computing technologies promises a revolution in this respect by providing roots of trust upon which secure applications can be developed. These technologies offer a particularly attractive platform for security in peer-to-peer environments. In this paper we propose a trusted computing architecture to enforce ac ...

Keywords: access control, policy enforcement, security architecture, trusted computing